

IDAHO DEPARTMENT OF FISH & GAME

Joseph C. Greenley, Director I.

FEDERAL AID TO FISH AND WILDLIFE RESTORATION

Job Performance Report

Project F-71-R-1



REGIONAL FISHERY MANAGEMENT INVESTIGATIONS

Job III-a. Region 3 Mountain Lake Investigations
Job III-b. Region 3. Lowland Lake Investigations
Job III-c. Region 3 Stream Investigations
Job III-d. Region 3 Technical Guidance
Job III-e. Region 3 Salmon and Steelhead Investigations

by

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JOB **PERFORMANCE** REPORT

State of Idaho Name: REGIONAL FISHERY MANAGEMENT INVESTI-
GATIONS
Project No. F-71-R-1
Job No. III-a Title: Region 3 Mountain Lakes Investi-
gations

Period Covered: 1 January 1976 to 31 December 1976

ABSTRACT

During the study period, personnel from the U.S. Forest Service and the Idaho Department of Fish and Game inventoried a total of 41 high mountain lakes in Region 3. We found populations of fish in 14 lakes; no fish in 6 lakes that we have planted in the past, 6 lakes that have not received fish but could support them and 15 lakes that do not have the potential to support fish.

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OBJECTIVES

To obtain angler use and harvest, species composition, relative abundance, age structure and life history of selected high mountain lakes in the North Fork of the Payette drainage, South Fork of the Payette drainage and Middle Fork of the Boise drainage.

TECHNIQUES USED

Personnel from the U. S. Forest Service and the Idaho Department of Fish and Game surveyed a total of 41 mountain lakes in the Sawtooth Mountains during the study period.

While visiting each lake we made visual observations of the type of lake, geologic parent material, inlet flow and spawning suitability, outlet flow and spawning suitability, water depth, average depth, shoal composition, shoal area, shoreline composition, terrestrial vegetation, aquatic plants fish species present, if any, limiting factors and access. We made all measurements by visual observation or spot measurements. We sampled fish species present with a rod and reel or by visual observation.

FINDINGS

Of the 41 total lakes surveyed, we found populations of fish in 14. I list those lakes in which we sampled fish, the data collected and recommendations for management.

Trail Creek Lake 3

Fish species present: rainbow trout
Last year stocked: 1969
Last species stocked: rainbow trout
Lake type: cirque
Geologic parent material: granitic
Inlet flow: 3 cfs - not suitable for spawning
Outlet flow: 3 cfs - fair spawning
Maximum water depth: 14.5 m (47.5 ft)
Average water depth: 10.9 m (35.8 ft)
Shoal composition: 50% rubble-gravel, 50% sand-silt
Shoal area: 5%
Shoreline: 40% rock, 20% soil, 40% vegetation
Terrestrial plants: conifer trees
Aquatic plants: phytoplankton
Aquatic animals: tricoptera, diptera
Fish sampled: rainbow trout
 Maximum length - 20 cm (7.9 in)
 Minimum length -
 Average length - 16 cm (6.3 in)
Access: trail

Trail Creek Lake 4

Fish species present: rainbow trout
Last year stocked: 1969
Last species stocked: rainbow trout
Lake type: cirque
Geologic parent material: granitic
Inlet flow: 0 cfs - not suitable for spawning
Outlet flow: 3 cfs - about 5 m (16.4 ft) of spawning area
Maximum water depth: 12.5 m (41 ft) Average water depth: 9 m (29 ft)
Shoal composition: 50% boulder, 25% gravel-rubble, 25% soil
Shoal area: 10%
Shoreline: 50% rock, 10% soil, 40% vegetation
Terrestrial plants: conifer trees
Aquatic plants: phytoplankton
Aquatic animals: zooplankton, odonata, tricoptera, diptera
Fish sampled: rainbow trout
 Maximum length - 40 an (15.7 in)
 Minimum length - 24 cm (9.4 in)
 Average length - 30 cm (11.8 in)
Access: no trail

Heart Lake

Fish species present: cutthroat trout
Last year stocked: 1975
Last species stocked: cutthroat trout
Lake type: cirque
Geologic parent material: granitic
Inlet flow: 3 cfs - about 15 m (49.2 ft) of spawning area
Outlet flow: 3 cfs - no spawning area Maximum water depth: 26.4 m (86.6 ft) Average water depth: 19.3 m (63.3 ft)
Shoal composition: 5% boulder, 95% sand Shoal area: 5%
Shoreline: 10% rock, 90% vegetation
Terrestrial plants: conifer trees
Aquatic plants: phytoplankton
Aquatic animals: zooplankton, tricoptera, diptera
Fish sampled: cutthroat trout
 Maximum length - 32 cm (12.6 in)
 Minimum length - 22 cm (8.7 in)
 Average length - 30 cm (11.8 in)
Access: no trail

Little Scenic Lake

Fish species present: cutthroat trout
Last year stocked: 1975
Last species stocked: cutthroat trout
Lake type: cirque
Geologic parent material: granitic
Inlet flow: 2 cfs - no spawning
Outlet flow: 2 cfs - 10 m (32.8 ft) of spawning
Maximum water depth: 7.1 m (23.3 ft)
Average water depth: 6.8 m (22.3 ft)
Shoal composition: 80% boulder, 5% rubble/gravel, 14% sand or silt,
1% debris
Shoal area: 20%
Shoreline: 25% rock, 75% vegetation
Terrestrial plants: conifer trees
Aquatic plants: phytoplankton
Aquatic animals: Ephemeroptera, tricoptera, diptera
Fish sampled: cutthroat trout
Maximum length - 25 cm (9.8 in)
Minimum length - 8 cm (3.1 in)
Average length - 10 cm (3.9 in)
Access: trail

Tripod Lake

Fish species present: cutthroat trout
Last year stocked: 1975
Last species stocked: cutthroat trout
Lake type: cirque
Geologic parent material: granitic
Inlet flow: 0.2 cfs - no spawning
Outlet flow: 0.2 cfs - no spawning
Maximum water depth: 5.2 m (17.1 ft)
Average water depth: 4.5 m (14.8 ft)
Shoal composition: 10% boulder, 10% gravel, 80% sand
Shoal area: 800
Shoreline: 20% rocks, 80% vegetation
Terrestrial plants: conifer trees
Aquatic plants: phytoplankton
Aquatic animals: hemiptera, tricoptera, coleoptera, diptera
Fish sampled: cutthroat trout
Maximum length - 40 cm (15.7 in)
Minimum length - 3 cm (1.2 in)
Average length - 20 cm (7.9 in)
Access: no trail

Queens River Lake 10

Fish species present: cutthroat trout
Last year stocked: unknown
Last species stocked: cutthroat trout
Lake type: cirque
Geologic parent material: granitic
Inlet flow: 0 cfs - no spawning
Outlet flow: 0 cfs - no spawning
Maximum water depth: not measured -- estimated at about 7-12 m
(23-39 ft)
Average water depth:
Shoal composition: 60% boulder, 20% gravel, 20% sand
Shoal area: 10%
Shoreline: 75% rock, 5% vegetation
Terrestrial plants: none
Aquatic plants: phytoplankton
Aquatic animals: tricoptera, diptera
Fish sampled: cutthroat trout
Maximum length - 20 cm (7.9 in)
Minimum length - 16 cm (6.3 in)
Average length - 18 cm (7.1 in)
Access: no trail

Queens River Lake 18

Fish species present: rainbow trout, cutthroat trout
Last year stocked: unknown
Last species stocked: cutthroat trout
Lake type: not recorded
Geologic parent material: Granitic
Inlet flow: 2 cfs - 5 m (16.4 ft) of spawning
Outlet flow: 2 cfs - no spawning
Maximum water depth: 20.7 m (67.9 ft)
Average water depth: 16.6 m (54.4 ft)
Shoal composition: 20% boulder, 15% gravel, 65% sand
Shoal area: 5%
Shoreline: 30% rock, 70% vegetation
Terrestrial plants: conifer trees
Aquatic plants: phytoplankton
Aquatic animals: coleoptera, diptera
Fish sampled: rainbow trout, cutthroat trout
Maximum length - 30 cm (9.1 in)
Minimum length - 22 cm (6.7 in)
Average length - 25 cm (7.6 in)
Access: no trail

Lower Flat Top Lake

Fish species present: rainbow trout
Last year stocked: 1975
Last species stocked: rainbow trout
Lake type: cirque
Geologic parent material: granitic
Inlet flow: 1 cfs - 5 m (16.9 ft) of spawning
Outlet flow: 0.5 cfs - no spawning
Maximum water depth: 5.0 m (16.4 ft)
Average water depth: 4.2 m (13.8 ft)
Shoal composition: 40% boulder, 20% gravel, 40% sand
Shoal area: 80%
Shoreline: 50% rock, 50% vegetation
Terrestrial plants: grass or sedges
Aquatic plants: sparse submerged forms
Aquatic animals: tricoptera, diptera
Fish sampled: rainbow trout
 Maximum length - 33 an (13.0 in)
 Minimum length - 23 cm (9.1 in)
 Average length - 25 cm (9.8 in)
Access: trail

Diamond Lake

Fish species present: cutthroat trout
Last year stocked: 1976
Last species stocked: cutthroat trout
Lake type: cirque
Geologic parent material: granitic
Inlet flow: 0 cfs - no spawning
Outlet flow: 0.5 cfs - 5 m (16.4 ft) of spawning
Maximum water depth: 15.8 m (51.8 ft)
Average water depth: 13.1 m (43.0 ft)
Shoal composition: 25% boulder, 25% gravel, 50% sand
Shoal area: 10%
Shoreline: 20% rock, 80% vegetation
Terrestrial plants: conifer trees
Aquatic plants: phytoplankton
Aquatic animals: zooplankton, ephemeroptera, tricoptera, diptera
Fish sampled: cutthroat trout
 Maximum length - 35 cm (13.8 in)
 Minimum length - 30 an (11.8 in)
 Average length - 33 cm (13.0 in)
Access: trail

Triangle Lake

Fish species present: cutthroat trout
Last year stocked: 1976
Last species stocked: cutthroat trout
Lake type: cirque
Geologic parent material: granitic
Inlet flow: 0 cfs - no spawning
Outlet flow: 0.5 cfs - 20 m (65.6 ft) of spawning
Maximum water depth: 11 m (36.1 ft)
Average water depth: 7.3 m (23.9 ft)
Shoal composition: 30% boulder, 10% gravel, 60% sand
Shoal area:
Shoreline:
Terrestrial plants: conifer trees
Aquatic plants: phytoplankton
Aquatic animals: zooplankton, ephemeroptera, adenta, tricoptera,
coleoptera, diptera, amphipada Fish sampled: cutthroat trout
Maximum length - 50 cm (19.7 in)
Minimum length - 2 cm (0.8 in)
Average length - 40 cm (15.7 in)
Access: trail

Browns Lake

Fish species present: cutthroat trout
Last year stocked: 1975
Last species stocked: cutthroat trout
Lake type: cirque
Geologic parent material: granitic
Inlet flow: 2 cfs - no spawning Outlet
flow: 2 cfs - no spawning Maximum
water depth: 7.5 m (24.6 ft) Average
water depth: 7.0 m (23.0 ft)
Shoal composition: 40% boulder, 10% gravel, 50% sand
Shoal area: 5%
Shoreline: 30% rock, 70% vegetation
Terrestrial plants: conifer trees

Aquatic plants: phytoplankton
Aquatic animals: zooplankton, diptera
Fish sampled: cutthroat trout
Maximum length - 40 cm (15.7 in)
Minimum length - 35 cm (13.8 in)
Average length - 30 cm (11.8 in)
Access: trail

Scenic Lake

Fish species present: cutthroat trout
Last year stocked: 1975
Last species stocked: cutthroat trout
Lake type: cirque
Geologic parent material: granitic
Inlet flow: 0 cfs - no spawning Outlet
flow: 1 cfs - no spawning Maximum water
depth: 21.7 m (71.2 ft) Average water
depth: 16.1 m (52.8 ft)
Shoal composition: 70% boulder, 5% gravel, 25% sand
Shoal area: 5%
Shoreline: 80% rock, 20% vegetation
Terrestrial plants: none
Aquatic plants: phytoplankton
Aquatic animals: ephemeroptera, tricoptera, diptera
Fish sampled: cutthroat trout Maximum
length - 25 cm (9.8 in) Minimum
length - 12 cm (4.7 in) Average
length - 14 cm (5.5 in)
Access: trail

Johnson Lake 1

Fish species present: cutthroat trout
Last year stocked: 1975
Last species stocked: cutthroat trout
Lake type: cirque
Geologic parent material: granitic
Inlet flow: 0 cfs - no spawning
Outlet flow: 0.5 efs - 5 m (16.4 ft) of spawning
Maximum water depth: not measured
Average water depth:
Shoal composition: 30% boulder, 30% gravel, 40% sand
Shoal area: 20%
Shoreline: 40% rock, 60% vegetation
Terrestrial plants: conifer trees
Aquatic plants: phytoplankton
Aquatic animals: zooplankton, hemiptera, tricoptera, diptera
Fish sampled: cutthroat trout
Maximum length - 11 cm (4.3 in)
Minimum length - 8 cm (3.1 in)
Average length - 9 cm (3.5 in)
Access: no trail

Johnson Lake 2

Fish species present: cutthroat trout
Last year stocked: 1975
Last species stocked: cutthroat trout
Lake type: cirque
Geologic parent material: granitic
Inlet flow: 0.5 cfs - 25 m (82 ft) of spawning
Outlet flow: 0.5 cfs - no spawning
Maximum water depth: 5.9 m (19.4 ft)
Average water depth: 5.2 m (17.1 ft)
Shoal composition: 30% boulder, 20% gravel, 50% sand
Shoal area: 10%
Shoreline: 50% rock, 50% vegetation
Terrestrial plants: grasses
Aquatic plants: phytoplankton
Aquatic animals: tricoptera, diptera
Fish sampled: cutthroat trout
Maximum length - 32 cm (12.6 in)
Minimum length - 25 cm (9.8 in)
Average length - 10 cm (3.9 in)
Access: no trail

We inventoried 6 high mountain lakes from which we could not sample any fish but which had received recent plants of fingerlings. I list those lakes, the data collected from each and possible limiting factors.

Herman Lake

Fish species present:
Last year stocked: 1975
Last species stocked: cutthroat trout
Lake type: cirque
Geologic parent material: granitic
Inlet flow: 0 cfs - no spawning
Outlet flow: 0.2 cfs, 5 m (16.4 ft) of spawning
Maximum water depth: 8 m (26.2 ft)
Average water depth: 5.9 m (19.4 ft)
Shoal composition: 2% boulder, 98% sand
Shoal area: 40%
Shoreline: 2% rock 78% vegetation
Terrestrial plants: conifer trees
Aquatic plants: sparse submerged forms
Aquatic animals: zooplankton, ephemeroptera, adonta, lemiptera, tricoptera, diptera, frogs and toads
Fish sampled:
Maximum length -
Minimum length -
Average length -
Access: trail
Comments: This lake has supported fish in the past. I feel it has marginal depth and could have winter killed. We should continue to stock it and reevaluate later.

P. S. Lake

Fish species present: California golden trout
Last year stocked: 1976
Last species stocked: California golden trout
Lake type: moraine
Geologic parent material:
Inlet flow: 2 cfs - 50 m (164 ft) of spawning
Outlet flow: 2 cfs - 10 m (32.8 ft) of spawning
Maximum water depth: 10.3 m (33.8 ft)
Average water depth: 8.7 m (28.5 ft)
Shoal composition: 2% boulder, 5% gravel, 93% sand
Shoal area: 5%
Shoreline: 5% rock, 95% vegetation
Terrestrial plants: conifer trees
Aquatic plants: phytoplankton
Aquatic animals: hemiptera, tricoptera, diptera, frogs
Fish sampled:
Maximum length -
Minimum length -
Average length -

Access:

Comments: We originally stocked P. S. Lake with California golden trout. These fish sustained themselves for a while. In 1972 P. S. Lake winter killed and we have never restocked it. We should maintain this lake for California golden trout and stock it when we have the fish.

Camp Lake

Fish species present:
Last year stocked: 1975
Last species stocked: cutthroat
Lake type: moraine
Geologic parent material:
Inlet flow: 1 cfs - no spawning
Outlet flow: 1 cfs - 5 m (16.4 ft) of spawning
Maximum water depth: 5 m (16.4 ft)
Average water depth: 4 m (13.1 ft)
Shoal composition: 2% boulder, 1% gravel, 97% sand
Shoal area: 100%
Shoreline: 10% rock, 90% vegetation
Terrestrial plants: conifer trees
Aquatic plants: phytoplankton
Aquatic animals: ephemeroptera, odonta, hemiptera, tricoptera, diptera
Fish sampled:
Maximum length -
Minimum length -
Average length -

Access: trail

Comments: Camp Lake has had cutthroat planted in it in the past but apparently cannot support them. The lake probably has insufficient depths to maintain a fish population during the winter. We should discontinue planting this lake.

Flat Top Lake

Fish species present:
Last year stocked: 1975
Last species stocked: cutthroat trout
Lake type:
Geologic parent material:
Inlet flow: 0 cfs - no spawning
Outlet flow: 0.5 cfs - no spawning
Maximum water depth: 7.8 m (25.6 ft)
Average water depth: 5.5 m (18.0 ft)
Shoal composition: 15% boulder, 15% gravel, 70% sand
Shoal area: 20%
Shoreline: 50% rock, 50% vegetation
Terrestrial plants: none
Aquatic plants: phytoplankton
Aquatic animals: zooplankton, ephemeroptera, hemiptera, tricoptera,
 diptera
Fish sampled:
 Maximum length -
 Minimum length -
 Average length -
Access: no trail
Comments: Flat Top Lake has supported good populations of cutthroat trout
 in the past and I can find no reason why it should not continue to do
 so. The lake has marginal depth but we should continue to stock it and
 resurvey it at a later date.

Cliff Lake

Fish species present:
Last year stocked: 1975
Last species stocked: cutthroat trout
Lake type: cirque
Geologic parent material:
Inlet flow: 0.2 cfs - no spawning
Outlet flow: 0.2 cfs - no spawning
Maximum water depth: 6 m (19.7 ft)
Average water depth: 4 m (13.1 ft)
Shoal composition: 30% boulder, 20% gravel, 50% sand
Shoal area: 50%
Shoreline: 80% rock, 20% vegetation
Terrestrial plants: conifer trees
Aquatic plants: phytoplankton
Aquatic animals: tricoptera, diptera
Fish sampled:
 Maximum length -
 Minimum length -
 Average length -
Access: no trail
Comments: Cliff Lake has supported trout populations in the past. The
 lake has marginal depth and small surface areas. The area has a
 potential for avalanche damage that could limit its potential as a
 fishery. We should continue to stock Cliff Lake and reevaluate later.

Slide Lake

Fish species present:
Last year stocked: 1975
Last species stocked: cutthroat trout
Lake type: moraine
Geologic parent material:
Inlet flow: 0 cfs - no spawning potential
Outlet flow: 0.2 cfs - no spawning potential
Maximum water depth: 3.5 m (11.5 ft)
Average water depth: 1.5 m (4.9 ft)
Shoal composition: 40% boulder, 10% gravel, 50% sand
Shoal area: 100%
Shoreline: 40% rock, 60% vegetation
Terrestrial plants: grass
Aquatic plants: phytoplankton
Aquatic animals: hemiptera, diptera
Fish sampled:
 Maximum length -
 Minimum length -
 Average length -

Access: no trail

Comments: We have stocked cutthroat trout in this lake in the past but it apparently cannot support fish due to shallow depths. We should discontinue fish plants in this lake.

During the study period we surveyed 6 high mountain lakes that have never been stocked with fish but have a potential to support them. I list those lakes, the data collected and recommendations for stocking.

Trail Creek Lake 3

Fish species present: Last
year stocked: Last species
stocked: Lake type: cirque

Geologic parent material:

Inlet flow: 0 cfs - no spawning potential
Outlet flow: 0 cfs - no spawning potential
Maximum water depth: 7.3 m (23.9 ft)
Average water depth: 5.8 m (19.0 ft)
Shoal composition: 5% boulder, 95% sand

Shoal area: 30%

Shoreline: 30% rock, 20% soil, 50% vegetation

Terrestrial plants: conifer trees

Aquatic plants: sparse submerged forms

Aquatic animals: zooplankton, ephemeroptera, odonta, tricoptera, coleoptera, diptera, mollusea, frogs and toads, leeches

Fish sampled:

 Maximum length -

 Minimum length -

 Average length -

Access: no trail

Trail Creek Lake 3 (Continued)

Comments: This lake has marginal depth but high production of aquatic invertebrates. We should make a small plant of rainbow trout in this lake and reevaluate.

Trailer Lake 2

Fish species present: Last
year stocked: Last species
stocked: Lake type: cirque
Geologic parent material:
Inlet flow: 1 cfs - no spawning potential
Outlet flow: 1 cfs - no spawning potential
Maximum water depth: 9 m (29.5 ft)
Average water depth: 7 m (23.0 ft)
Shoal composition: 20% boulder, 5% gravel, 75% sand
Shoal area: 20%
Shoreline: 30% rock, 20% soil, 50% vegetation
Terrestrial plants: conifer trees
Aquatic plants: phytoplankton
Aquatic animals: zooplankton, ephemeroptera, tricoptera, diptera
Fish sampled:
 Maximum length -
 Minimum length -
 Average length -
Access: no trail
Comments: Trailer Lake 2 has marginal depth and a low productive potential. We should stock it lightly and reevaluate later.

Flytrip Lake 1

Fish species present: Last
year stocked: Last species
stocked: Lake type: cirque
Geologic parent material:
Inlet flow: 0.2 cfs - no spawning potential
Outlet flow: 0.2 cfs - no spawning potential
Maximum water depth: 8.5 m (27.9 ft)
Average water depth: 6.8 m (27.3 ft)
Shoal composition: 2% boulder, 97% sand and silt
Shoal area: 25%
Shoreline: 10% rock, 75% vegetation
Terrestrial plants: conifer trees
Aquatic plants: sparse submerged forms
Aquatic animals: zooplankton, ephemeroptera, odonta, hemiptera, coleoptera, diptera, frogs and toads
Fish sampled:
 Maximum length -
 Minimum length -
 Average length -

Flytrip Lake 1 (Continued)

Access: no trail

Comments: Flytrip Lake 1 has only marginal potential to support fish life and we should not stock it at this time.

Flytrip Lake 2

Fish species present: Last

year stocked: Last species

stocked: Lake type: cirque

Geologic parent material:

Inlet flow: 2 cfs - no spawning potential

Outlet flow: 1 cfs - 2 m (6.6 ft) of spawning material

Maximum water depth: 7.3 m (23.9 ft)

Average water depth: 6.4 m (21.0 ft)

Shoal composition: 50% boulder, 10% gravel, 40% sand and silt

Shoal area: 25%

Shoreline: 40% rock, 60% vegetation

Terrestrial plants: conifer trees

Aquatic plants: phytoplankton

Aquatic animals: zooplankton, ephemeroptera, hemiptera, tricoptera, diptera, frogs and toads

Fish sampled:

Maximum length

Minimum length

Average length

Access: no trail

Comments: This lake has adequate depths and excellent production.

We should stock it with cutthroat trout and reevaluate.

Flytrip Lake 3

Fish species present: Last

year stocked: Last species

stocked: Lake type: cirque

Geologic parent material:

Inlet flow: 0 cfs - no spawning potential

Outlet flow: 0 cfs - no spawning potential

Maximum water depth: 7.7 m (25.3 ft)

Average water depth: 6.4 m (21.0 ft)

Shoal composition: 10% boulder, 25% rubble, 65% sand

Shoal area: 20%

Shoreline: 10% rock, 90% vegetation

Terrestrial plants: conifer trees

Aquatic plants: phytoplankton

Aquatic animals: zooplankton, ephemeroptera, hemiptera, tricoptera, diptera, frogs and toads

Fish sampled:

Maximum length -

Minimum length -

Average length -

Comments: Flytrip Lake 3 has only marginal potential to support fish life. We should not stock it at this time.

Flytrip Lake 4

Fish species present: Last
 year stocked: Last species
 stocked: Lake type: cirque
 Geologic parent material:
 Inlet flow: 0 cfs - no spawning potential
 Outlet flow: 0 cfs - no spawning potential
 Maximum water depth: 6.9 m (22.6 ft)
 Average water depth: 5.9 m (19.4 ft)
 Shoal composition: 20% boulder, 30% rubble, 50% sand
 Shoal area: 20%
 Shoreline: 20% rock, 80% vegetation
 Terrestrial plants: conifer trees
 Aquatic plants: phytoplankton
 Aquatic animals: zooplankton, ephemeroptera, hemiptera, tricoptera,
 diptera
 Fish sampled:
 Maximum length -
 Minimum length -
 Average length -

Access: no trail

Comments: Flytrip Lake 4 has only marginal potential to support fish live and we should not stock it at this time.

We surveyed a total of 15 high mountain lakes during the study period

that I do not feel have the potential to support populations of fish. I list those lakes with the supportive data for not planting them.

<u>Lake</u>	<u>Limiting factors</u>
PS-2	Insufficient depth
PS-3	Insufficient depth
PS-4	Insufficient depth
No Name (near Triangle)	Insufficient depth
No Name (near Diamond)	Insufficient depth
Queens 11	Insufficient depth; low productivity
Queens 12	Insufficient depth; avalanche damage
Queens 15	Insufficient depth; avalanche damage
Queens 16	Insufficient depth; avalanche damage
Queens 17	Insufficient depth
Flytrip 5	Insufficient depth
Trailer Lake 4	Very deep unproductive lake; insufficient shoal area
Trailer Lake 3	Insufficient depth
Trailer Lake 1	Insufficient depth, low productivity
Trail Creek 2	Insufficient depth; avalanche damage

ACKNOWLEDGEMENTS

I wish to express my appreciation to Mr. Greg Munther of the U. S. Forest Service and Ms. Debbie Steffans of the U. S. Bureau of Land Management for their aid and cooperation in gathering data for this report.

JOB PERFORMANCE REPORT

State of Idaho Name: REGIONAL FISHERY MANAGEMENT INVESTI-
GATIONS
Project No. F-71-R-1 Title: Region 3 Lowland Lakes and Reservoirs
Job No. III-b Investigations

Period Covered: 1 January 1976 to 31 December 1976

ABSTRACT

Personnel from the United States Bureau of Land Management and the Idaho Department of Fish and Game surveyed Spencer, Triangle, Louisa, Big Blue and Little Blue Reservoirs during the study period. All reservoirs lie in the semi-arid desert of Owyhee County. We found excellent trout populations in Triangle and Louisa Reservoirs and only rough fish in Spencer and Little Blue Reservoirs. We found Big Blue Reservoir dry.

During analysis of past research at Cascade Reservoir, we found a greater catch rate of coho and rainbow trout during 1972 than in any other year. We felt the greater catch rates resulted from a different water release program during the winter and spring of 1971-72.

During the 1976 study period we made an attempt to study coho emigration from the reservoir during the spring spill period but bridge reconstruction over the spillway prevented use of the spillway. We did demonstrate that anglers could achieve greater catch rates in the forebay when water was not passed over the spillway during periods of coho emigration.

Authors:

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RECOMMENDATIONS

Spencer Reservoir

High water temperatures, shallow depths and drawdown for irrigation use prevents the use of this reservoir for game fish.

Big Blue Reservoir

Periodic evacuation of all water in Big Blue Reservoir prevents the use of the reservoir for game fish.

Little Blue Reservoir

Irrigators annually evacuate water from Little Blue Reservoir but it does keep enough water for game fish. We should monitor this reservoir for another year to determine if it will support cold water game fish.

Triangle and Louisa Reservoirs

Both Triangle and Louisa reservoirs have good populations of wild rainbow trout. We should continue to manage these reservoirs for wild trout and attempt to obtain better access.

Cascade Reservoir

We should attempt to obtain an agreement with the U. S. Bureau of Reclamation to evacuate water from Cascade Reservoir by way of the two deep water tubes. We should use the spillway only during periods when demand exceeds the capacity of the deep water tubes.

The U. S. Bureau of Reclamation should avoid spills during the late winter and spring months when coho smolts congregate in the forebay.

We should continue studies of coho emigration from Cascade Reservoir

OBJECTIVES

To obtain angler use and harvest, species composition, relative fish abundance, age structure, and life history data for fish populations in selected lowland lakes and reservoirs in Owyhee County, Paddock Valley Reservoir in Gem County; Deadwood and Cascade reservoirs in Valley County.

To obtain angler use and harvest on Browns and Rowlands ponds in Valley County. To determine return to the creel of fingerling planted rainbow trout in Mann Creek Reservoir in Valley County. To establish and monitor the success of habitat improvement structures in C. J. Strike Reservoir.

TECHNIQUES USED

Personnel from the U. S. Bureau of Land Management and from the State of Idaho Department of Fish and Game surveyed five reservoirs in Western Owyhee County. We did not survey those reservoirs and lakes listed in the project outline due to a lack of temporary help. The reservoirs surveyed had an equally high priority as those listed in the project outline.

From each of the lakes surveyed we described the physical condition of the water, water chemistry, degree of livestock use and species composition. We made a physical description by visual observance, obtained water temperature with a pocket thermometer and measured dissolved oxygen by use of a modified winkler system.

To obtain species composition, we used nylon monofilament floating gill nets, 125 ft long and 6 ft deep. We had each net rigged with 5 panels, 25 ft long with 3/4-, 1-, 1 1/2-, 2- and 2 1/2- in square mesh. We enumerated all species captured. We obtained total length, in millimeters, from all game fish sampled and from a sample of the nongame species sampled.

To evaluate the rate of coho and rainbow trout emigration from Cascade Reservoir, we compared catch rates of anglers fishing below Cascade Dam during periods of spill and no spill.

INTRODUCTION

Personnel from the U. S. Bureau of Land Management (BLM) and the Idaho Department of Fish and Game surveyed Spencer Reservoir, Triangle Reservoir, Louisa Reservoir, Little Blue Reservoir and Big Blue Reservoir. All reservoirs surveyed lie in Owyhee County, Idaho (Fig. 1).

Cascade Reservoir lies in Valley County, Idaho. It contains excellent populations of brown bullheads, yellow perch, rainbow trout and coho salmon. The Idaho Department of Fish and Game annually plants 500,000 to 600,000 coho fingerlings, 50,000 to 60,000 catchable-size rainbow trout and 40,000 to 50,000 fingerling-size rainbow trout. In the past, we have found that many of the rainbow trout and almost all of the coho salmon emigrate from the reservoir during the winter and spring months when spills occur.

FINDINGS

Spencer Reservoir

Spencer Reservoir lies in Western Owyhee County at an elevation of 1,570 m (5,150 ft) in Section 13, T7S, R3W, Boise Meridian. When full, it has 35 surface acres and a volume of 100 acre ft, with a maximum depth of 5.5 m (18 ft). On 28 September 1976, the reservoir had a maximum depth of 2.4 m (8 ft).

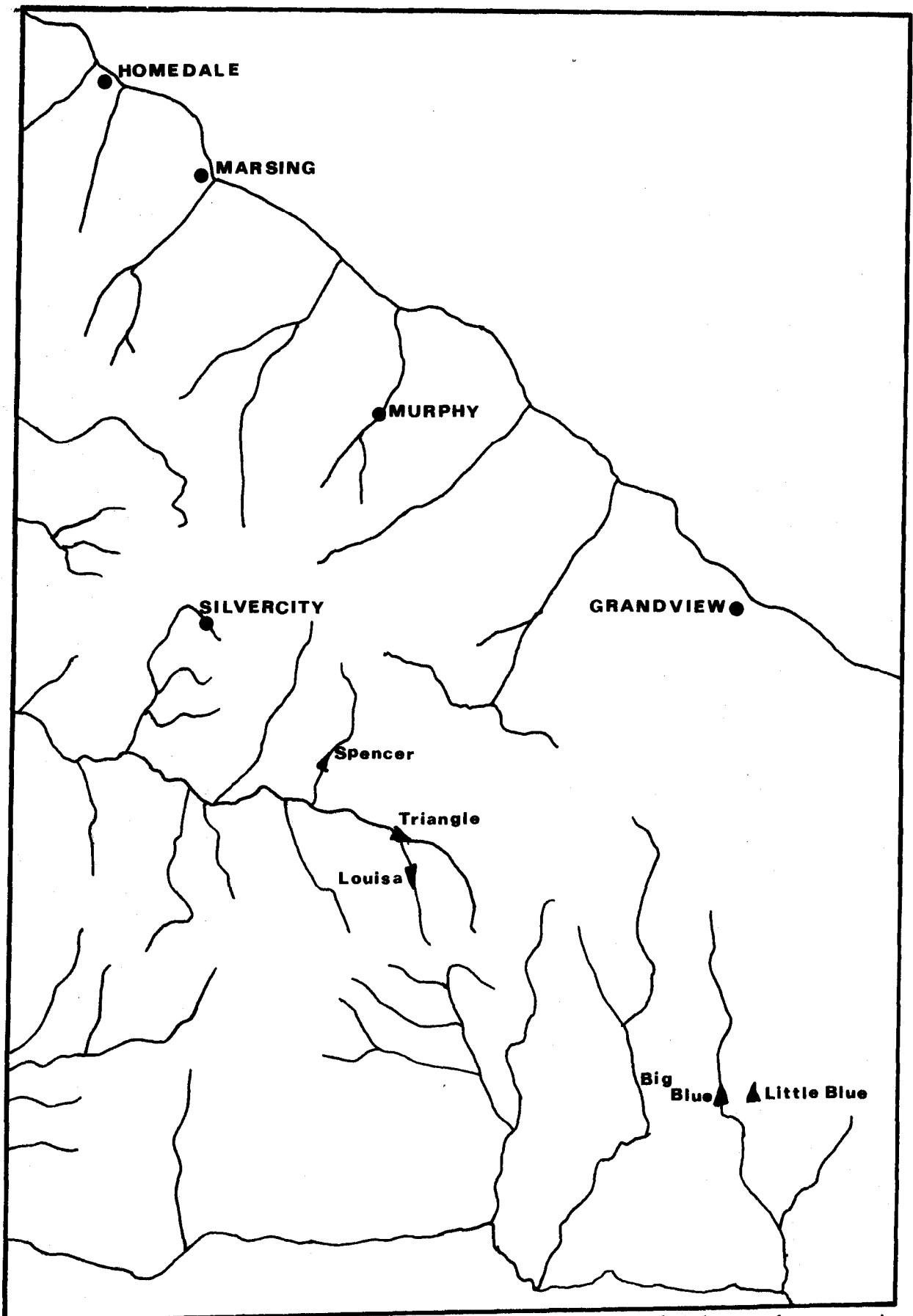


Figure 1. Map of study area for investigation of lowland lakes and reservoirs in Western Owyhee County.

The watershed around Spencer Reservoir receives heavy livestock use. Livestock use the reservoir for drinking water and most riparian vegetation has been beaten down. Juniper trees, sagebrush and grass make up the pre-dominant plant species in the watershed.

On 28 July 1976, we inspected Spencer Reservoir to check a reported fish kill. We found about 10,000± redbase shiners, suckers and chisel-mouth chub dead or dying. It appeared that only adult fish had died. We obtained a water sample from the surface of the reservoir and found 0 ppm dissolved oxygen. It appeared that the reservoir had experience a large bloom of diatoms.

We returned to Spencer Reservoir on 28 September 1976 with personnel from the BLM. We set gill nets in the reservoir for a total of 19 hours. We have listed below the data obtained.

Date: 28 September 1976
Air temperature: 22 C (71.6 F)
Water temperature: 17.0 C (62.6 F)
Dissolved oxygen: 6.5 ppm
Depth: 2.4 m (8 ft)
Livestock use: heavy
Riparian vegetation: willow at inlet - otherwise, none.

We did not enumerate the total number of fish in the gill net, but we estimated that we caught over 500 redbase shiners, chiselmouth chub, and suckers. Size of the fish ranged from 40-60 mm (1.6-2.4 in).

Triangle Reservoir

Triangle Reservoir lies in Western Owyhee County at an elevation of about 1,585 m (5,200 ft) above sea level in Section 31, T7S, R3W, Boise Meridian. When full, Triangle Reservoir has about 87 surface acres with a depth of 7.6 m (25 ft). The reservoir receives water from Rock Creek which normally has good annual flows.

The surrounding range grows juniper, sagebrush and grass. The reservoir receives only moderate livestock use. We have listed below data collected from Triangle Reservoir:

Date: 28 September 1976

Air temperature: 23 C (73.4 F)
Water temperature: 17.5 C (63.5 F)
Dissolved oxygen: 8.4 ppm
Depth: 6.1 m (20 ft)
Livestock use: moderate
Riparian vegetation: juniper, sagebrush, grass

We set two gill nets in Triangle Reservoir for a total of 38 hours. We have listed below the species captured and the lengths of those captured:

Rainbow trout:

Number: 24
Maximum length: 385 mm (15.2 in)
Minimum length: 185 mm (7.3 in)
Average length: 293.3 mm (11.5 in)

Squawfish:

Number: 7
Maximum length: 370 mm (14.6 in)
Minimum length: 140 mm (5.5 in)
Average length: 253.6 mm (10.0 in)

Sucker:

Number: 147
Maximum length: 350 mm (13.8 in)
Minimum length: 165 mm (6.5 in)
Average length: 260.9 mm (10.3 in)

Redside shiners:

Number: 7
Maximum length: 150 mm (5.9 in)
Minimum length: 120 mm (4.7 in)
Average length: 131.4 mm (5.2 in)

Louisa Reservoir

Louisa Reservoir lies in Western Owyhee County at an elevation of about 1,600 m (5,250 ft) above sea level at Section 31, T8S, R2W. The reservoir receives water from Louisa Creek which normally flows year-round.

The vegetation in the watershed consists of juniper, sagebrush, mountain mahogany and grass. The reservoir receives light to moderate livestock use and has no visible signs of damage.

We have listed below the data obtained from Louisa Reservoir.

Date: 28 September 1976
Air temperature: 21 C (69.8 F)
Water temperature: 16 C (60.8 F)
Dissolved oxygen: 8.3 ppm
Depth: 9.4 m (30 ft)

We set one gill net in Louisa Reservoir for 16 hours. We captured only two rainbow trout, 254 mm (10 in) and 235 mm (9.3 in).

We did observe many rainbow trout feeding on the surface. We fished the reservoir for one hour and caught 3 rainbow trout, 250 mm (9.8 in), 255 mm (10 in) and 260 mm (10.2 in).

Little Blue Reservoir

Little Blue Reservoir lies in Western Owyhee County at an elevation of 1,646 m (5,400 ft) at Section 16, T13S, R3E, Boise Meridian. When full, it has a maximum depth of 10.1 m (33 ft) and a volume of 800 acre-feet. The watershed vegetation consists of sagebrush and grass. The surrounding range receives moderate to heavy livestock use and shows little visible damage.

We surveyed Little Blue Reservoir on 23 September 1976. We have listed below the data collected.

Date: 23 September 1976
Air temperature: 21 C (69.8 F)
Water temperature: 17 C (62.6 F)
Depth: 4.9 M (16 ft)

We set one gill net in the reservoir for 17 hours and collected 68 suckers and 28 redbreasted shiners.

Big Blue Reservoir

Big Blue Reservoir lies in Western Owyhee County at an elevation of 1,646 (5,400 ft) above sea level in Sections 2 and 11, T13S, R2E, Boise Meridian. The surrounding range and conditions are the same as those described for Little Blue Reservoir. We surveyed Big Blue Reservoir on 23 September 1976 and found it dry.

Cascade Reservoir

Since coho salmon planted in Cascade Reservoir retain their migratory instinct, we could expect that during years of high spring runoff more coho smolts would find their way out of the reservoir. Therefore, anglers should harvest fewer fish following high flow years than following low flow years.

Data collected from 1969 to 1975 shows a good correlation between high flows and low catch in all years except 1972 (Fig. 2). The 1969 catch reflects the first harvest of coho after introduction and displays the harvest of only one year class. During 1972 anglers harvested a record number of coho and a record number of rainbow trout despite the second highest flow through Cascade Reservoir. Examination of the U. S. Bureau of Reclamation water release records revealed that irrigation demand during 1971 had caused an extreme drawdown of the reservoir and resulted in no flows over the spillway during 1972. The Bureau had released all water from the two deep water tubes during 1971 and 1972.

To study the emigration of coho smolts from Cascade Reservoir we had planned to conduct creel interviews of anglers above and below Cascade Dam during periods of spill and no spill. However, the Bureau of Reclamation did not use the spillway during 1976 because of a bridge reconstruction over the spillway. We, therefore, did not compare catch rates between periods of spill and no spills. We did manage to demonstrate a major difference in the success rates between anglers in the forebay and those fishing the river below the dam.

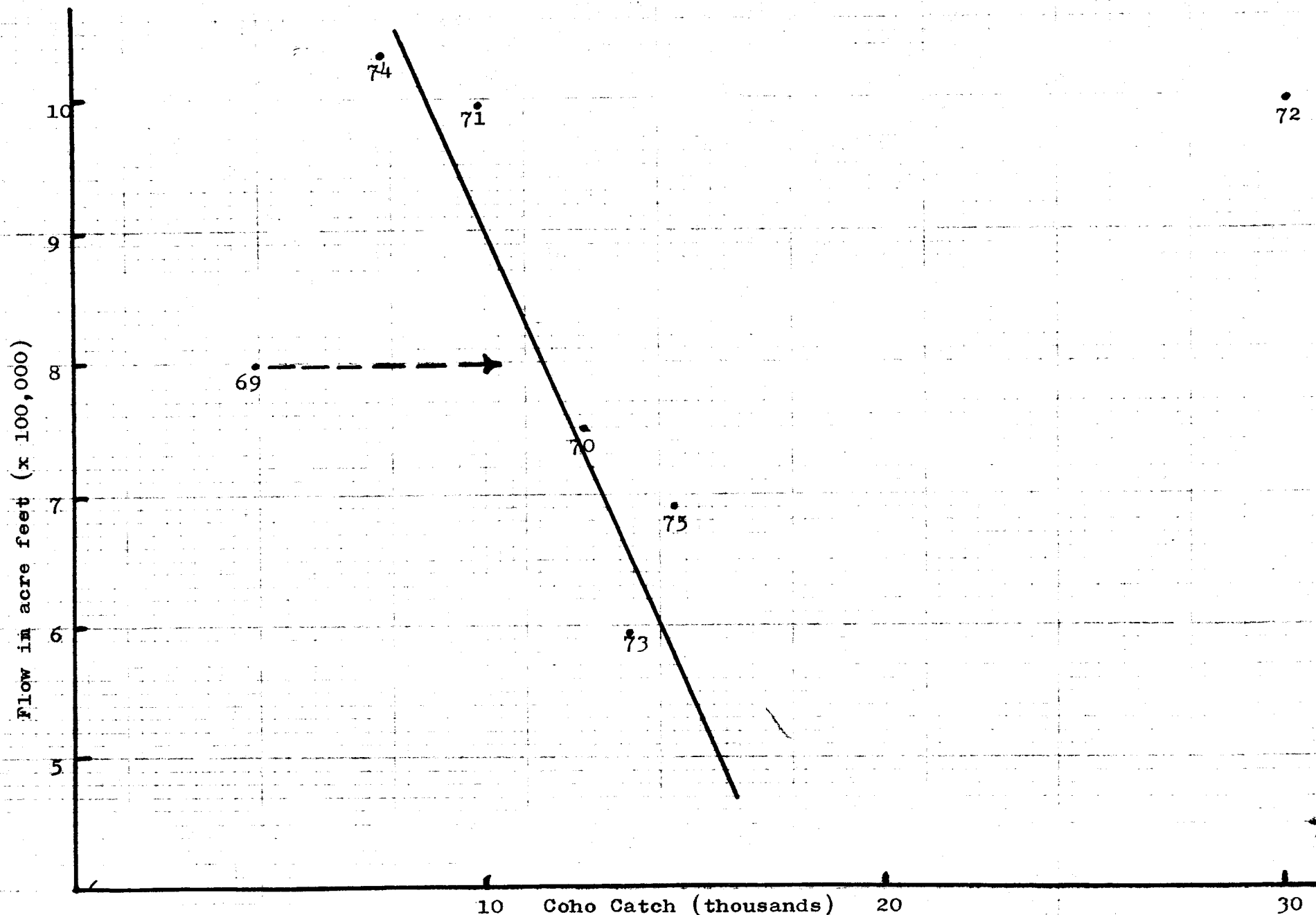


Figure 2. Cascade Reservoir estimated coho salmon catch, 1969-1975, as compared to the total flow through the reservoir.

Between 5 April to 14 June 1976, we interviewed 262 anglers above and below Cascade Dam. Anglers fishing the forebay had much higher success rates than those fishing below the dam (Table 1).

Although we have inadequate data from previous years to compare, we feel that fishing success below Cascade Dam in the spring of 1976 was much lower than previous years.

The two deep water tubes, each capable of passing 1,000 cfs, have debris screens constructed of a metal grill with 1-in spacing. Most coho smolts are small enough to pass through the screen but it may be enough of a deterrent that they will not push it. We could detect no difference in dissolved oxygen between water passed over the spillway and that passed through the deep water tubes.

Spot checks of angler on Cascade Reservoir during the summer of 1976 indicates a catch of coho equal to or exceeding the 30,000 fish caught during 1976.

Table 1. Success rates of anglers fishing for coho salmon above and below Cascade Dam during 1976.

Location	Anglers	Hours	Catch	Fish/hour	Coho/ hour
Forebay	191	561	231 Coho	1.72	0.41
			100 Rainbow		557
			Perch		
			21 Bullheads		
			21 Suckers		
			25 Squawfish		
			1 Whitefish		
Below Dam	71	186	17 Coho	0.59	0.09
			100 Rainbow		58
			Perch		
			25 Squawfish		
			1 Sucker		

JOB PERFORMANCE REPORT

State of Idaho Name: REGIONAL FISHERY MANAGEMENT INVESTI-
GATIONS
Project No. F-71-R-1 Title: Region 3 Stream Investigations
Job No. III-c

Period Covered: 1 January 1976 to 31 December 1976

ABSTRACT

During the study period, personnel from the United States Bureau of Land Management and the Idaho Department of Fish and Game surveyed 19 streams in Owyhee County. We found some degree of livestock use on all streams sampled with various degrees of stream bank damage.

We electrofished 17 of the 19 streams surveyed and set a small explosive charge in one. We captured rainbow trout in 11 streams. Longnose dace appeared most frequently in our samples with mountain sucker the next most frequent.

Author:

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Regional Fishery Manager

OBJECTIVES

To obtain physical and biological data for the streams and rivers within the boundaries of Idaho Fish and Game Region 3.

TECHNIQUES USED

Personnel from the United States Bureau of Land Management and from the State of Idaho Department of Fish and Game surveyed a total of 19 streams in Western Owyhee County (Fig. 1). We sampled streams for fish species present, basic water chemistry, physical stream description, riparian vegetation and degree of animal use.

To sample fish species in the stream we used a backpack electro-shocker, powered by a 12 volt battery, and small explosives. We used the shocker in the D. C. mode at 324 volts at 1 to 3 Amps. We attempted to use large firecrackers to sample some pool areas.

Each fish sampled was enumerated and classified. From the game species sampled, we obtained the total length in millimeters and a scale sample for age determination. Time requirements have not permitted us to complete the age and growth data but I will include this material in the next annual report.

FINDINGS

All streams sampled flow through Western Owyhee County and eventually drain into the Snake River. For purposes of this report I have classed the streams by five major drainages. I list below those major drainages and the tributary streams we sampled,

1. Snake River Drainage

Castle Creek
Sinker Creek
Reynolds Creek
Squaw Creek
Jump Creek

2. Succor Creek Drainage

Succor Creek
Cow Creek

3. Jordan Creek Drainage

Jordan Creek
Williams Creek
South Fork of Boulder Creek
Combination Creek
Josephine Creek

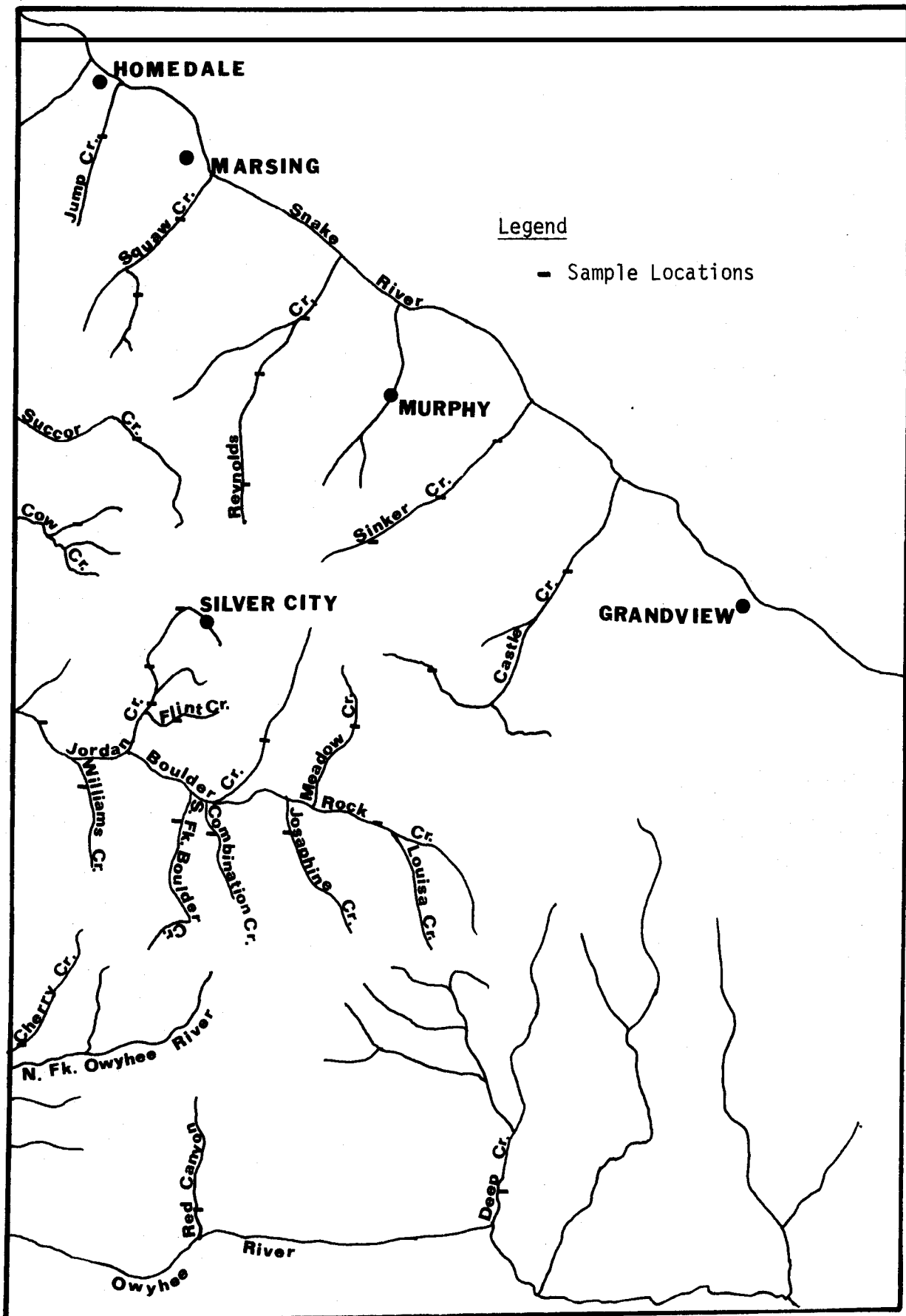


Figure 1. Map of study area for investigation of streams and rivers in Western Owyhee County, 1976.

3. Jordan Creek Drainage (Continued)

Rock Creek
Meadow Creek
Boulder Creek
South Mountain Creek

4. Owyhee River Drainage

Juniper Creek Red
Canyon Creek Deep
Creek

In many of the Owyhee County streams, we have captured trout species which physically resemble what the literature has described as the red-banded trout. Those trout also resemble stunted rainbow trout. For purposes in this report, our trout sampled are listed as xainbow trout. We need further research throughout Owyhee County to classify these fish and to determine distribution, if they are red banded trout.

Snake River Drainage

All streams listed in the Snake River Drainage flow off the North slopes of the Owyhee Mountains. Many of these streams flow intermittent during the summer. We sampled all streams in this drainage during September. The dissolved oxygen in all streams sampled varied very little, 8.3 ppm at Jump Creek to 8.7 ppm in Sinker Creek near the mouth of Scotch Bob Creek (Table 1).

Livestock have grazed all stream sections sampled with only moderate use on most. Only on Jump Creek and Castle Creek did the stream bank appear unstable. On Sinker Creek near the mouth of Scoth Bob Creek we described livestock use as heavy yet the stream bank remained stable.

We electrofished all streams sampled in the Snake River Drainage. We captured rainbow trout from Reynolds Creek station 1, near the weir, and station 2, near the mouth of Dobson Creek; in Sinker Creek station 1, Murphy-Oreana Highway, and station 3, near Silver City. From all other streams we sampled only suckers and dace (Table 2).

Succor Creek Drainage

Succor Creek and its tributaries drain the southwest side of the Owhyee Mountains and eventually flow into the Snake River. The headwaters begin in seni-arid mountains and flow through low desert terrain. We sampled two streams in this system, Succor Creek and Cow Creek. We found the dissolved oxygen high in both streams, 8.4 ppm in Succor Creek and 8.6 ppm in Cow Creek (Table 3). Livestock had only moderate use on Succor Creek and high use on Cow Creek. The stream bank stability reflected the use with stable banks on Succor Creek and unstable on Cow Creek.

We electrofished both of these streams at the sample sites. We

Table 1. Summary of stream sampling data, Snake River Drainage, Owyhee County, 1976.

u,

	Jump Creek	Squaw Creek	Reynolds* Creek (1)	(2)	(3)	Sinker Cr. (4)	(5)	(6)	Castle Creek
Date	9/14/76	9/10/76	9/3/76	9/3/76	9/10/76	9/10/76	9/26/76	9/2/76	9/15/76
Air temp.	20 C	17.5 C	22.5 C	22.5 C	26.0 C	27.5 C	31.5 C	16.5 C	18.5 C
Water temp.	17 C	19.5 C	18.0 C	18.0 C	19.0 C	18.0 C	22.0 C	14.5 C	17.0 C
D. O. (ppm)	8.3	N.M.	8.4	8.4	N.M.	N.M.	8.7	8.4	8.4
Avg. width (ft)	6	4.5	7	N.M.	3	4	5	NS	10
Avg. depth (in)	8	5	2	N.M.	3	9	4	NS	6
Pool riffle	50:50	80:20	60:40	70:30	5:95	60:40	90:10	NS	50:50
Substrate	grave rock	rock clay	rock gravel	rock gravel	gravel	rock gravel	rock gravel	NS	clay silt
Livestock use	moderate	light	moderate	moderate	light	light	heavy	light	moderate
Bank stability	unstable	stable	stable	stable	stable	stable	stable	stable	unstable
Gradient	moderate	steep	moderate	moderate	moderate	shallow	moderate	moderate	moderate
Cover type	willow grass	willow shrub alder	grass willow	Cotton- wood	grass willow	willow	brush willow	willow	willow

31
*(1) Weir

Mouth of Dobson Creek
Owyhee Highway
Murphy-Oreana Highway
Mouth of Scotch Bob Creek
Near Silver City

Table 2. Summary of electrofishing data, Snake River Drainage, Owyhee County, 1976.

	Jump Cree	Squa Cree	Reynolds Creek			Sinker Cr. (4)	(5)	Castl Creek
			(1)	(2)	(3)			
Time fished (seconds)	214	275	480	63	12 6	461	Not measured	323
Distance fished (yards)	50	40	150	20	25	60	200	40
Species sampled								
Sucker	yes	yes	no	no	no	no	no	yes
Dace	no	yes	yes	no	no	yes	yes	yes
Sculpin	no	no	no	no	no	no	no	no
Shiner	no	no	no	no	no	no	no	no
Squawfish	no	no	no	no	no	no	no	no
Rainbow trout	no	no	yes	yes	no	yes	yes	no
Maximum size (mm)			261	204		232	320	
Minimum size (mm)			59	68		96	73	
Average size (mm)			181. 0	131.3		131.3	147.3	
Number			20	3		24	35	

(1) Mouth of Dobson Creek

(2) Owyhee Highway

(4) Murphy-Oreana Highway

(5) Mouth of Scotch Bob Creek

Table 3. Summary of stream sampling data, Succor Creek drainage, Owyhee County, 1976.

	Succor Creek	Cow Creek	
		(1)	(2)
Date	7/2/76	8/26/76	8/26/76
Air temp.	25.5 C	18.5 C	21 C
Water temp.	23 C	16.0 C	15.5 C
D. O. (ppm)	8.4	8.6	No sample
Avg. width (ft)	5	6	5
Avg. depth (in)	6	6	5
Pool riffle	80:20	30:70	90:10
Substrate	silt	rock gravel	rock gravel
Livestock use	moderate	high	high
Bank stability	stable	unstable	unstable
Gradient	shallow	moderate	shallow
Cover type	grass	willow	willow

(1) Headwaters

(2) Mouth of Soda Creek

captured rainbow trout, suckers and dace from both streams. The lower sample site on Cow Creek had only sucker and dace (Table 4).

Jordan Creek Drainage

The Jordan Creek drainage receives water from the southwest side of the Owyhee Mountains and flows to the Owyhee River in Oregon. The headwaters begin at elevations near 2,134 m (7,000 ft) and flow through mostly semi-arid deserts. We sampled four locations on Jordan Creek and one on each of the eight tributaries sampled. Dissolved oxygen ran from a low of 7.3 ppm in Rock Creek on 25 August to a high of 8.9 ppm in South Mountain Creek on 8 September (Table 5)., We found heavy livestock use on Rock Creek, South Mountain Creek, Meadow Creek and Boulder Creek. We also found heavy stream bank erosion on the South Fork of Boulder Creek. All stream sections with heavy livestock use had unstable stream banks. Jordan Creek had light livestock use at all sample sites with stable stream banks.

We obtained electrofishing data from all sample sites except Josephine Creek and Jordan Creek station 3, near Delamar. We captured rainbow trout at all stations sampled in Jordan Creek, Williams Creek, the South Fork of Boulder Creek, Combination Creek and South Mountain Creek (Table 6). Meadow Creek and Boulder Creek had only rough fish.

Owyhee River Drainage

We sampled three streams in the Owyhee River system; Juniper Creek which flows into the North Fork of the Owyhee River, Red Canyon Creek and Deep Creek which drain into the main river. We found heavy livestock use and unstable stream banks on Juniper Creek and Red Canyon Creek. Deep Creek had stable stream banks and light livestock use (Table 7).

We obtained electrofishing data from Juniper Creek and Red Canyon Creek. We used small explosives to sample Deep Creek. Both Juniper Creek and Red Canyon Creek produced rainbow trout (Table 8). From Deep Creek we obtained only dace, shiners and suckers, but feel the efficiency of small explosives used was quite low.

Table 4. Summary of electrofishing data, Succor Creek Drainage, Owyhee County, 1976.

	Succor Creek	Cow	
		(1)	(2)
Time fished (seconds)	294	517	146
Distance fished (yards)	60	100	30
Species sampled:			
Sucker	yes	no	yes
Dace	yes	no	yes
Sculpin	no	no	no
Shiner	no	no	no
Squawfish	no	no	no
Rainbow trout	yes	yes	no
Maximum size (mm)	197	246	
Minimum size (mm)	66	51	
Avg. size (mm)	90.7	103. ^	
Number	21	49	

Table 5. Summary of stream sampling data, Jordan Creek Drainage, Owyhee County, 1976.

	Jordan Creek			Williams Creek	S.F. Boulder Creek
	(1)	(2)	(3)		
Date	8/11/76	7/28/76	7/12/76	8/23/76	9/24/76
Air temp.	25 C	13 C	21.5 C	19.5 C	8 C
Water temp.	23 C	13 C	15.5 C	16.0 C	4 C
D. O. (ppm)	No sample	No sample	No sample	8.1	No sample
Avg. width (ft)	8	8	15	No sample	4
Avg. depth (in)	12	3	7	No sample	5
Pool riffle	85:15	No sample	20:80	50:50	60:40
Substrate	rock gravel	rock gravel	gravel sand	rock gravel	rock silt
Livestock use	light	light	light	not recorded	not recorded
Bank stability	stable	stable	stable	not recorded	eroded
Gradient	moderate	moderate	moderate	steep	moderate
Cover type	rock	willow shrub Aspen	willow	willow boulder	willow

(1) Flint Creek
(2) Below Delamar
(3) At Delamar

Table 5. (Cont'd). Summary of stream sampling data, Jordan Creek Drainage, Owyhee County, 1976.

	Combination Creek	Rock Creek	So. Mountain Creek	Meadow Creek	Boulder Creek
Date	8/24/76	8/25/76	7/8/76	7/23/76	8/24/76
Air temp.	20 C	19.0 C	13.5 C	No sample	27.5 C
Water temp.	13.5 C	16.5 C	10.0 C	No sample	23 C
Dissolved oxygen (ppm)	8.0	7.3	8.9	No sample	8.1
Avg. width (ft)	3	5	No sample	4	No sample
Avg. depth (in)	4	3	No sample	3	No sample
Pool riffle	20:80	80:20	40:60	60:40	80:20
Substrate	gravel sand	rock	gravel silt	gravel silt	gravel silt
Livestock use	moderate	heavy	heavy	heavy	heavy
Bank stability	unstable	unstable	unstable	unstable	unstable
Gradient	moderate	shallow	shallow	shallow	shallow
Cover type	willow	shrub grass	willow grass	grass	willow brush

Table 6. Summary of electrofishing data, Jordan Creek Drainage, Owyhee County, 1976.

	Jordan Creek				Williams Creek	S.F. Creek
	(1)	(2)	(3)	(4)		
Time fished (seconds)	761	394	No sample	671	383	216
Distance fished (yards)	100	300	No sample	35	30	30
Species captured:						
Sucker	No	No		No	No	No
Dace	No	No		No	No	No
Sculpin	No	No		No	No	No
Shiner	No	No		No	No	No
Squawfish	No	No		No	No	No
Rainbow trout	Yes	Yes		Yes	Yes	Yes
Maximum size (mm)	258	258		262	227	178
Minimum size (mm)	122	113		45	62	51
Average size (mm)	179.3	184.6		170. ₁	97.9	101.2
Number	6	29		35	22	44

Table 6 (Cont'd.). Summary of electrofishing data, Jordan Creek Drainage, Owyhee County, 1976.

	Combination Creek	Rock Creek	Josephine Creek	So. Mountain Creek	Meadow Creek	Boulde r
Time fished (seconds)	218	372	No sample	428	Not recorded	523
Distance fished (yards)	25	40		40	50	150
Species captured:						
Sucker	No	Yes		No	Yes	Yes
Dace	No	Yes		No	Yes	Yes
Sculpin	No	No		No	No	Yes
Shiner	No	No		No	Yes	Yes
Squawfish	No	No		No	No	Yes
Rainbow trout	Yes	No		Yes	No	No
Maximum size (mm)	193			198		
Minimum size (mm)	49			36		
Average size (mm)	97.3			107.7		
Number	26			38		

Table 7. Summary of stream sampling data, Owyhee River Drainage, Owyhee County, 1976.

	Juniper Creek	Red Canyon Creek	Deep Creek
Date	10/6/76	8/19/76	8/19/76
Air temp.	15.0 C	12 C	13.5 C
Water temp.	16.0 C	12 C	13.5 C
Dissolved oxygen (ppm)	8.6	Not sampled	Not sampled
Average width (ft)	8	8	20
Average depth (in)	3	5	Not sampled
Pool riffle	Not sampled	60:40	90:10
Substrate	silt sand gravel	rock gravel	rock
Livestock use	heavy	heavy	light
Bank stability	unstable	unstable	stable
Gradient	shallow	moderate	shallow
Cover type	grass Juniper	grass boulder	rock

Table 8. Summary of electrofishing data, Owyhee River Drainage,
Owyhee County, 1976.

	Juniper Creek	Red Canyon Creek	Deep *
Time fished (seconds)	172	246	NA
Distance fished (yards)	45	60	NA
Species captured:			
Sucker	Yes	No	Yes
Dace	Yes	Yes	Yes
Sculpin		Yes	No
Shiner		No	Yes
Squawfish	Yes	No	No
Rainbow trout	Yes	Yes	No
Maximum size (mm)	203	84	
Minimum size (mm)	--	80	
Average size (mm)	--	--	
Number	1	2	

* Small explosive charge

A P P E N D I X

Appendix. Water quality data obtained from Owyhee County streams in mg/l.

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	Succor Creek	Sinker Creek	Squaw Creek	Jump Creek	Meadow Creek	Cow Creek	Flint Creek	Rock Creek	Williams Creek	Boulder Creek
Dissolved oxygen	8.4	8.7	8.9	8.3	8.3	8.6	9.6	NM	8.1	8.1
Turbidity (JTU)	9.3	10.0	12.0	14.0	8.4	1.9	1.5	5.1	3.0	2.6
pH	7.4	7.7	8.0	8.1	7.2	7.4	7.4	7.1	7.7	7.5
Total solids	137.0	154.0	368.0	473	123	113	127	178	203	120
Nitrate (NO3)	x.01	<.01	2.77	1.54	0.01	0.32	0.15	0.01	1.22	0.01
Orthophosphate (PO4)	0.25	0.17	<.01	0.13	0.23	0.12	0.09	0.16	0.04	0.03
Hardness (CaCo3)	66.0	48	194	166	42	60	64	66	142	30
Magnesium	4.52	3.31	NM	NM	2.54	4.3	6.68	NM	NM	NM
Alkalinity (CaCo ₃)	86	62	176	108	60	56	72	96	128	60
Iron (total)	0.50	0.18	NM	NM	0.52	0.09	0.20	NM	NM	NM
Suspended solids	10.0	18.0	36	11	22.2	15.5	26.6	20	20.0	24.4
Total dissolved solids	138	140	333	429	96	100	102	NM	175	87
Mercury mg/ml	<.005	<.005	NM	NM	<0.005	<0.005	<0.005	NM	NM	NM
Lead mg/ml	<.01	<.01	NM	NM	c0.01	<0.01	<0.01	NM	NM	NM
Manganese	170	10	NM	NM	NM	10	150	NM	NM	
Amonia	NM	NM	0.04	0.03	NM	NM-	NM	NM	NM	NM

JOB PERFORMANCE REPORT

State of Idaho

Name: REGIONAL FISHERY MANAGEMENT INVEST-
GATIONS

Project No. F-71-F-1

Title: Region 3 Technical Guidance

Period Covered: 1 January 1976 to 31 December 1976

ABSTRACT

During the study period I reviewed and commented on documents received from Idaho Department of Water Resources, Idaho Department of Health and Welfare, Idaho Department of Transportation, United States Environmental Protection Agency, United States Army Corps of Engineers, and Ada Council of Governments. I also cooperated with the State of Idaho Department of Health and Welfare to conduct biological surveys of two streams in Canyon County, Idaho.

Author:

Will Reid
Regional Fishery Manager

OBJECTIVES

To provide technical assistance to county, state, federal and private agencies within Idaho Department of Fish and Game Region 3 boundaries.

TECHNIQUES USED

We inspect and comment on all projects within Region 3 which may have an impact on the fish resource. Data in this report will be presented from 1 January to 31 December 1976. Reporting on a calendar year for technical assistance will ease interpretation and later review by the resource manager.

FINDINGS

Water Resources

During the period between 1 January and 31 December 1976, I reviewed a total of 144 applications for permits to alter streams in the State of Idaho. Of the total, the Boise River received 37%, the Payette River 21%, the Weiser River 15%, the Salmon River 18%, the Owyhee River 7% and the Bruneau River 2% (Table 1).

Of the 144 permits applied for we recommended denial of only 15 permits.

On the Boise River 40 of 54 applications requesting a permit to alter the stream applied to the main river and 14 applied to tributary streams. On the Weiser River applicants applied for 13 main stream alterations and 11 tributary alterations. Applicants for stream alterations on the Payette River requested 18 main stream alterations and 11 tributary alterations. On the Salmon River, applicants applied for 12 main stream alterations and 14 tributary alterations.

The Boise River received the greatest total impact having 22,738 linear feet of stream altered. The Payette received the next greatest impact (13,705 ft) followed by the Weiser River (16,370 ft), the Salmon River (9,797 ft), the Owyhee River (8,678 ft) and the Bruneau River (530 ft).

Alterations for agricultural purposes accounted for the greatest number of applications received on the Boise River, the Weiser River and the Owyhee River. Bridge installation, culvert placement for logging activities and gravel dredging accounted for the majority of applications on the other streams.

Department of Transportation

During the year I reviewed six projects submitted by the Idaho State Department of Transportation.

Table 1. Summary of applications for permits to alter streams in Region 3, 1976.

Drainage	Number of applications	Number denied	Field inspections	Main stream alterations	Tributary alterations	Area altered in ft	Major type of alteration
Boise River	54	4	18	40	14	22,738	Agriculture
Payette River	30	1	7	18	11	13,900	39% Agriculture 31% Culvert Installation
Weiser River	21	0	6	13	18	16,370	86% Agriculture
Bruneau River	3	0	1	3	0	530	100% Bridge ment
Owyhee River	10	9	4	2	8	8,678	50% Agriculture 30% Dredge mining 20% Bridge construction
Snake River	22	1	4	12	14	2,727	15% Agriculture 15% Dredge mining 70% Miscellaneous

<u>Project name</u>	<u>Impact</u>
1. State Street Corridor	New bridge construction
2. Bike Route - Diversion to Discovery Park	Sand removal from Diversion Dam
3. Forest Highway 22 State Highway 55 (Banks North)	Widen highway - two walls in the North Fork of the Payette River
4. Chinden-Broadway Corridor	New bridge construction
5. North Fork Payette Highway	Widen Highway
6. Highway 95 Goff Bridge - Cox Ranch	Widen and realign highway

United States Environmental Protection Agency

Between 1 January and 31 December 1976, we reviewed and commented on 45 applications for permits to discharge effluents into Idaho streams. Municipal waste treatment facilities accounted for 73% of the applications received. We did not object to any of these permits provided the applicant could meet all state and federal water quality standards for discharge in class A streams of Idaho.

United States Army Corps of Engineers

During the year I received and commented on four U. S. Army Corps of Engineers 404 permits.

<u>Project</u>	<u>Impact</u>
1. Snake River Mile 372	Dredge and fill around Snake River Bridge
2. Waste water facility plan for Caldwell	Modification of Caldwell waste treatment facility
3. Boise Bikeway	Place fill material in Diversion Dam
4. Bridge on north and south channel of the Boise River near Eagle	Replace fill around bridges

Ada Council of Governments - 208

During the 1976 calendar year I worked with the Ada Council of Governments to identify Point-Nonpoint pollution sources within Ada and Canyon counties and to establish minimum flow recommendations for the Boise

River. We have not completed work on either of these projects and no final results are available yet.

State of Idaho Department of Health and Welfare

I worked with the Idaho Department of Health and Welfare on two major projects this year. Both projects involved a request to lower state water quality standards for discharge to Idaho streams. The first project involved the City of Meridian, Idaho. The City of Meridian has plans to build a new waste treatment facility and would like to discharge water into Five Mile drain. To do so, at the level of treatment planned for, the State of Idaho would have to lower its water quality standards for Five Mile drain and remove the standards which would protect fish and other aquatic life. We recommended that the Department of Health and Welfare not lower its standards. The Department of Health and Welfare held a hearing and the state water quality standards for Five Mile drain remained unchanged.

The second project involved the City of Nampa. The City of Nampa and the major industries around Nampa requested that the Department of Health and Welfare change the water quality standards on Indian Creek and remove certain standards that protect fish and aquatic life. The Department of Health and Welfare and the Department of Fish and Game conducted a survey of Indian Creek and recommend that they make no change in the water quality standards for Indian Creek. The Idaho Board of Health and Welfare has not made a final ruling on this project.

JOB PERFORMANCE REPORT

State of Idaho Name: REGIONAL FISHERY MANAGEMENT
INVESTIGATIONS
Project No. F-71-R-1 Title: Region 3 Salmon and Steelhead
Job No. III-e Investigations

Period Covered: 1 January 1976 to 31 December 1976

ABSTRACT

Salmon spawning ground surveys were conducted on the South Fork Salmon River drainage and on portions of the Middle Fork Salmon River drainage. Results of these surveys were combined with those of Regions 2 and 6 and are reported in the job performance report for Project F-49-R-15.

Author:

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Regional Fishery Biologist


Submitted by:

Will Reid
Regional Fishery Manager

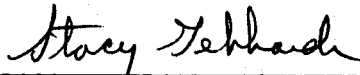
Thomas L. Welsh
Regional Fishery Biologist

Approved by:

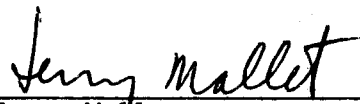
IDAHO DEPARTMENT OF FISH AND GAME



Joseph C. Greenley, Director



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